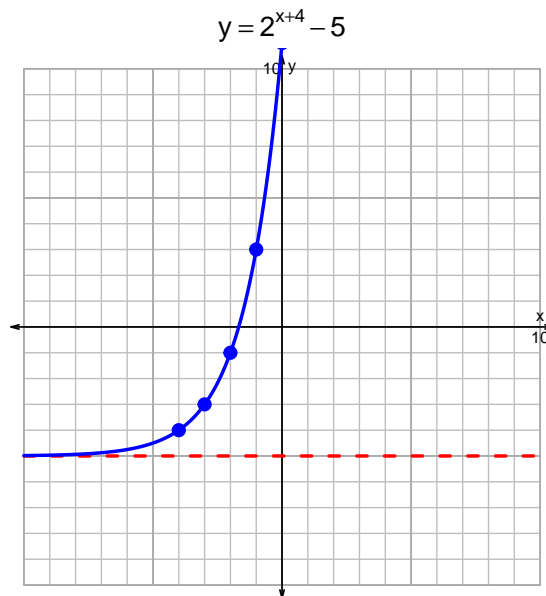
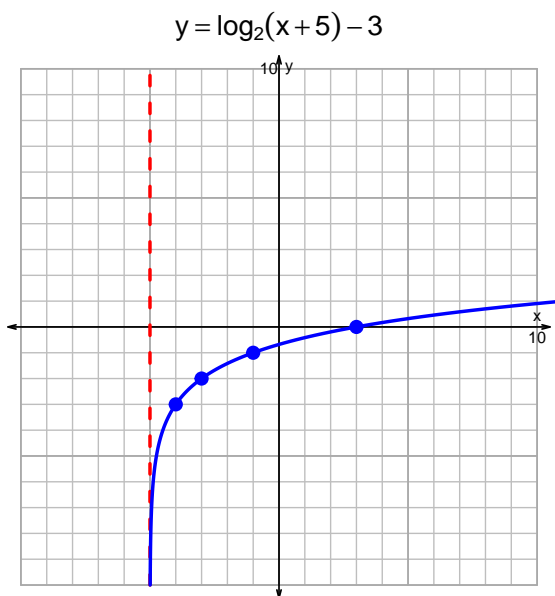


Name: _____

Date: _____

s18QUIZ: EXP LOG (SOLUTION v5)

1. Graph $y = \log_2(x + 5) - 3$ and $y = 2^{x+4} - 5$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-13 = \left(\frac{-5}{7}\right) \cdot 2^{-4t/3}$$

Divide both sides by $\frac{-5}{7}$.

$$\frac{13 \cdot 7}{5} = 2^{-4t/3}$$

Take log, base 2, of both sides.

$$\log_2 \left(\frac{13 \cdot 7}{5} \right) = \frac{-4t}{3}$$

Divide both sides by $\frac{-4}{3}$.

$$\frac{-3}{4} \cdot \log_2 \left(\frac{13 \cdot 7}{5} \right) = t$$

Switch sides.

$$t = \frac{-3}{4} \cdot \log_2 \left(\frac{13 \cdot 7}{5} \right)$$

3. An exponential function $f(x) = 12.5 \cdot e^{-2.91x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(1.9)$.

$$f(1.9) = 0.05$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{-1}{2.91} \cdot \ln\left(\frac{x}{12.5}\right)$$

- c. Using the plot above, evaluate $f^{-1}(40)$.

$$f^{-1}(40) = -0.4$$